

EE 929C: Geometrical Theory of Diffraction

Fall 2012

10:20 – 11:40 TuTh 2243 Engineering Building

Instructor: Ed Rothwell
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Office hours: TBD

Text: Geometrical Theory of Diffraction for Electromagnetic Waves, G.L. James, IEE Press, NY, 1990.

Web: MSU Angel course management system (www.angel.msu.edu)

Class Notes: Class notes are available on Angel

Grading: Homework: 25%
Final Exam: 50%
Student Presentation: 25%

Course Outline -----

| <u>TOPIC</u> | <u>TEXT</u> |
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| 1. Review of complex variables | Notes |
| 2. Two-dimensional field equations | 2.1 |
| 3. Fourier transform solutions to the Helmholtz equation | Notes |
| 4. Wiener-Hopf technique | Notes |
| 5. Canonical problem 1: planar dielectric interface | 3.1 |
| 6. Canonical problem 2: the half plane | 3.2 |
| 7. Canonical problem 3: the wedge | 3.3 |
| 8. Canonical problem 4: the cylinder | 3.4 |
| 9. Principles of Geometrical Optics | Chapter 4 |
| 10. Diffraction by straight edges and surfaces | Chapter 5 |
| 11. Diffraction by curved edges and surfaces | Chapter 6 |

Holidays – no class: Thanksgiving 11/22

Final exam: Tuesday, December 11, 2012, 7:45–9:45am.